

REMARKS

Claims 28, 31-35 and 39-42 are pending in this application. By this Amendment, claims 1-7, 10-14, 22-26 and 45-47 are canceled without prejudice to, or disclaimer of, the subject matter recited therein. In addition, claims 28 and 39 are amended to clarify the individual-frequency-utilization-ratio setting portion feature and correct informalities. Claims 31-35 and 40-42 are amended to correct informalities. Support for the claim amendments can be found, for example, in Fig. 25 and its supporting disclose. No new matter is added.

I. Personal Interview

Applicants appreciate the courtesies shown to Applicants' representative by Examiners Khan and Zimmerman in the October 5, 2010 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

II. §112 Rejection

The Office Action rejects claims 28, 31-35 and 39-42 under 35 U.S.C. §112, first paragraph. In particular, the Office Action asserts that "a frequency-utilization-ratio setting portion operable to set a distribution of a frequency utilization ratio which is a ratio of time period during which each frequency channel is used as a hopping frequency of a subcarrier signal in which a frequency hopping is implemented and which is used to modulate said main carrier," as recited in claims 28 and 39 is not supported by the specification.

However, paragraph [0215] of the as-filed application (paragraph [0286] of the published specification) discloses that the term "individual frequency utilization ratio" is a ratio of a time period during which each frequency channel is used as the hopping frequency of the subcarrier signal of the endpoint device in question. Therefore, there is support for this feature in the specification.

Withdrawal of the rejection is requested.

III. The Claims Define Patentable Subject Matter

The Office Action rejects claims 28, 31-33, 35 and 39-42 under 35 U.S.C. §103(a) over U.S. Patent No. 6,107,910 to Nysen in view of U.S. Patent No. 6,362,737 to Rodgers et al. ("Rodgers") and further in view of U.S. Patent No. 5,940,006 to MacLellan et al. ("MacLellan") in view of U.S. Patent No. 6,963,184 to Carlson and further in view of U.S. Patent Application Publication No. 2001/0040508 to Janning et al. ("Janning"); and rejects claim 34 under 35 U.S.C. §103(a) over Nysen, and further in view of Rodgers, and further in view of MacLellan in view of Janning, and further in view of U.S. Patent Application Publication No. 2001/0020897 to Takatori et al. ("Takatori"). The rejections are respectfully traversed.

The Applied references, either alone or in combination, fail to disclose and would not have rendered obvious "wherein in response to a supply voltage of the battery cell being lower than a predetermined threshold value, the individual-frequency-utilization-ratio setting portion is configured to shift a statistical center frequency of the distribution of the individual frequency utilization ratio to a lower frequency by selecting a first individual-frequency-utilization-ratio distribution pattern from a plurality of individual-frequency-utilization-ratio distribution patterns that includes at least the first individual-frequency-utilization-ratio distribution pattern and a second individual-frequency-utilization ratio-distribution pattern, wherein the first individual-frequency-utilization-ratio distribution pattern is relatively high in the relatively low frequency channels and the second individual-frequency-utilization-ratio distribution pattern is relatively high in the relatively high frequency channels," as recited in claim 28.

The Office Action asserts that MacLellan discloses the claimed first and second distribution patterns and that Carlson and Nysen both disclose adjusting the center frequency. The Office Action further asserts that Janning discloses monitoring a battery state and that

Rodgers discloses using upper bands, which use less bandwidth and save power, to avoid using more than a predetermined average power. Although not explicitly stated, it appears that the Office Action is asserting that because it is known that higher bands require less power and that it is known to relocate a center frequency of a distribution pattern, it would have been obvious to select the first distribution pattern so that the statistical center frequency is shifted to a lower frequency.

However, in order to shift the statistical center frequency of the distribution of the frequency utilization ratio to a lower frequency, use of the lower frequencies would have to be increased, while use of the higher frequencies would have to be decreased. Thus, Rodgers teaches away from the claimed subject matter because Rodgers discloses increasing the use of higher frequency bands and reducing the use of lower frequency bands when a supply voltage is lower than desired (see Rodgers, col. 11, line 66-col. 12, line 1). Therefore, one of ordinary skill in the art would have no reason for combining Rodgers with the other references to teach the above feature. None of the other references remedy the deficiency of MacLellan. Accordingly, claim 28 is patentable over the applied references.

Claim 39 recites "the individual-frequency-utilization-ratio setting portion is configured to shift a statistical center frequency of the distribution of the individual frequency utilization ratio to a lower frequency in response to a supply voltage of the battery cell being lower than a predetermined threshold value, wherein the statistical center is shifted based on the switching information generated by the switching-information generating portion and one of the at least two discrete supply voltages of the battery cell detected by the power-source-information detecting portion, the statistical center is shifted by selecting a first-individual-frequency-utilization-ratio distribution pattern from a plurality of individual-frequency-utilization-ratio distribution patterns that includes at least the first individual-frequency-utilization-ratio distribution pattern and a second individual-frequency-utilization-ratio

distribution pattern, and wherein the first individual-frequency-utilization-ratio distribution pattern is relatively high in the relatively low frequency channels and the second-individual-frequency-utilization-ratio distribution pattern is relatively high in the relatively high frequency channels." Therefore, claim 39 is patentable over the applied references, at least for reasons similar to those discussed above for claim 28, as well as for the additional features claim 39 recites.

Dependent claims 31-35 and 40-42 depend from independent claims 28 through 39, respectively. Therefore, claims 31-35 and 40-42 are patentable at least for their dependence from claims 28 and 39, as well as for the additional features those claims recite.

Withdrawal of the rejections is requested.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the pending claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Request for Continued Examination
Petition for Extension of Time

Date: October 25, 2010

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